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SOIL CONSERVATION

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SOIL CONSERVATION

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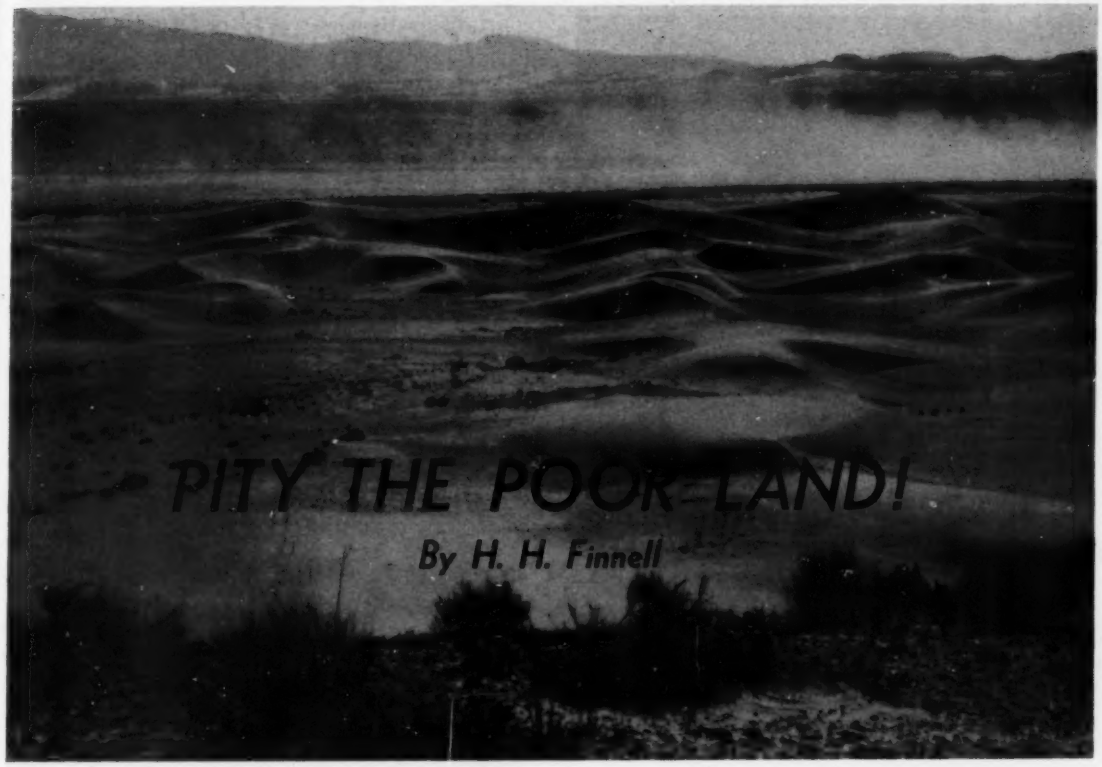
WELLINGTON BRINK, EDITOR

CONTENTS

Both Lowis Berns, Jr., and his collie make efficient hands on the family farm near Garnaville, Iowa. Strip crops may be faintly discerned in background. (Photograph by W. H. Lathrop.)

SOIL CONSERVATION is issued monthly by Soil Conservation Service of the United States Department of Agriculture, Washington, D. C. The matter contained herein is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with the approval of the Director of the Budget. SOIL CONSERVATION seeks to supply to workers of the Department of Agriculture engaged in soil conservation activities, information of special help to them in the performance of their duties. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., 10 cents a copy, or by subscription at the rate of $1.00 per year, domestic; $1.50 per year foreign. Postage stamps will not be accepted in payment.



Overgrazing and wind erosion piled these desert sands to the north of Rio Salade, 4 miles above its junction with the Rio Grande, in New Mexico. Prior to 1890 the scene was different.

A NEW DUST BOWL may be in the making. The pattern was set by the blinding black blizzards of the "dirty thirties"—blizzards which could have been prevented.

Out here in the Great Plains when the surface of cultivated soils becomes bare of crop stubbles, all you have to do to get a dust storm is to wait for the March winds. These winds are one of the most dependable features of the plains climate. They come every March, just as it says in the poem, except that some years "March" comes in February and again in April. Farmers put the land in condition to blow by making a failure of crops through misuse and abuse of the land. Nature can then be counted on to add her vengeful touch.

NOTE.—The author is project supervisor, Soil Conservation Service, Amarillo, Tex.

The old familiar routine is being faithfully carried out. During an hour's drive into the countryside near Cheyenne Wells, Colo., in mid-April, 1946, there were 29 powerful tractors to be seen ripping up the sod. They were plowing again the land reclaimed from the dust by Government help and sowed back to grass in the 1930's. They were also turning over native sod on shallow soils never before plowed. This was but a sample of the mischief going on in a dozen other localities along a 600-mile front.

For half a century this margin zone has been the scene of repeated cycles of frontier crashing, bankruptcy, and abandonment. Greenhorn settlers have pushed out into the arid plains beyond the established farming zone. They have messed up the place, gone broke, and vacated it to lie idle again until a new crop of suckers got ripe.

The last cycle began about 20 years ago. High prices for crops and land, the big adventure of pioneering—and before you know it you are away out there in the beginning of nowhere. To be caught in one of these booms means eventual failure, and another move, leaving despoiled land be-

Whirlwinds: Finely pulverized soil invites disaster. Stubble stands guard. Tillage with one-way plow helps pin down soil.

hind you. It never fails, when the conditions are right.

Now, the same process is starting again in the very same place. If the present situation is any different from that of the late 1920's, it is worse—in many localities, at any rate. Replowing previously damaged land seems foolhardy enough; but extending cotton and wheat farming further over the ragged edge than ever before leaves the old time plainsman dumbfounded. One item of comfort is that the plow-up in the Great Plains was not nearly so extensive during the recent war as during and following World War I. And much of the land that was plowed had not been plowed previously.

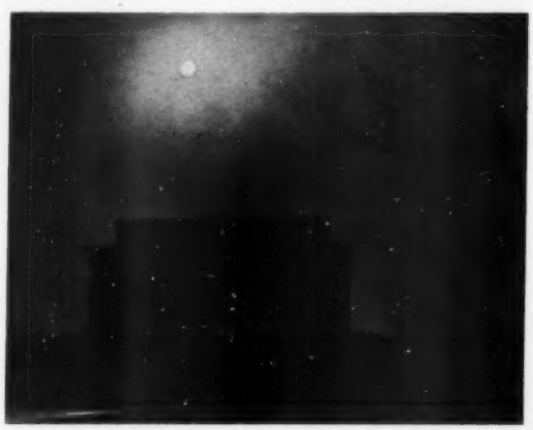
The worst abuse of the land has taken place in New Mexico, Colorado, and Texas. In New Mexico, loose sandy soils are being planted to pinto beans, as they are to cotton in the extreme western part of Texas. All of our experience shows that such lands can rarely be kept under control more than 2 or 3 years after being broken out of their protective cover.

In Colorado it is not so much a problem of sand as of thin soil. The plowing of shallow and droughty lands was being prevented by Colorado's original conservation law, through organized soil conservation districts controlled by farmers and ranchers. However, the enforcement of land-use regulations has been under attack for about five years.

Opponents of conservation first took a test case to the State Supreme Court. A land owner seeking a permit to plow inferior land appealed from the decision of the Smoky Hill Soil Conservation District. Having been soundly beaten in the high court, their attention was turned toward the State conservation law. Land speculators, who were swayed more by a chance to cheat a new generation of greenhorns than by public welfare, got in their innings—helped to pull the teeth of the law.

Now the control of the district regulations is no longer in the hands of the farmers and ranchers who live on the land. Restrictions against the cultivation of inferior land were quickly voted out by the absentee ballots of nonresident owners. It is not at all unlikely that Coloradoans will live to regret allowing themselves to be pushed around by out-of-state speculators.

Certain strongly financed land companies also were on the alert. When the double trouble of depression and dust storms threw hundreds of thousands of acres of marginal land on a buyers' market, they bought at rock-bottom prices. The Federal Government was also in this land market,



Science Service gives us this view of a dismal day in the Nation's Capital in 1935. The sun became a midnight moon as it sought to penetrate the darkness cast by drifting farms and ranches from western blow areas.

but Washington was only buying in the worst spots with the purpose of stabilizing shifty soils for public protection. Various land companies were getting ready for the suckers. Now they are profiting by the sale of low-grade land at prices worthy of the best plains wheat land.

Just to show how lucrative this land business is, a pressure group was organized last winter to lobby Federal law changes which would provide for the resale of reclaimed lands to private ownership. The tracts in question were purchased by the Government and painstakingly restored to grass by the Soil Conservation Service. The pressure group

included interested men from neighboring States. They organized themselves with the announced purpose of obtaining the removal of Federal protection from these lands.

With so many people putting so much determination into it, getting this margin land back into condition to blow again is a cinch. The next dust bowl can easily be a whiz-dinger!

Here it might be said that living next door to this sort of thing promises to get tiresome. Country people are not the only ones to suffer when the dust breaks loose. Automobile crashes multiply. Delicate machinery—machinery of all kinds—is damaged. Trade, transportation, and public services are interfered with. Housewives become most unhappy. All this in addition to the land damage!

Surveys by soil conservation technicians show that during the "dirty thirties" around 90 percent of the inferior grade land on the plains then in cultivation was put out of production by wind damages, permanently or for varying periods. Of the middle grade land, about 26 percent was so damaged it was not practical to continue cultivation. At the same time only 0.8 percent of the choice grade land within the dust bowl area was

SOIL BLOWING

Conditions were reported favorable for soil blowing on a total of 7,284,192 acres. A year ago conditions were reported favorable for soil blowing on 3,783,978 acres. The report of November 1, 1945, showed that conditions were favorable for soil blowing on 4,495,050 acres. Texas accounts for more than one-third of the total acreage reported this year * * *.

The reports show that as of April 1, 7,986,694 acres were being contour-farmed. The acreage being contour-farmed in counties having a soil conservation district totals 6,646,834. In other words, a very high percent of the contour-farming is being conducted in counties having an organized soil conservation district * * *

Terraces are protecting 4,130,983 acres. Texas and Oklahoma lead the other States in the amount of terracing that has been done. They likewise lead the other States in the amount of contour-farming that is being practiced. Of the total acreage protected by terraces, 3,451,794 acres are in counties having a soil conservation district. Of the 384 counties reporting, 261 have an organized soil conservation district, as compared with 243 counties of the 413 reporting a year ago.

NOTE.—This statement is taken from the April 1, 1946, Report of Committee on Conditions in the Great Plains; R. I. Throckmorton, Chairman.

Colorado dust storm in May of '37. Total darkness lasted half an hour.

Kansas barrier: A field wind-stripped with alternate rows of sorghum 10 rods wide and summer fallow 20 rods wide. The fallow strips were planted to winter wheat in September.

seriously impaired. That experience should teach us a clear lesson in soil conservation.

The best basic precaution against dust storms is to keep cultivation away from sandy lands and shallow soils and to keep out of the excessively dry sections. The most trouble has consistently shown up along the belt of 14 to 17 inches annual rainfall. Pointing the finger of caution at these more critical parts of Kansas, Colorado, New Mexico, Oklahoma, and Texas by no means indicates that they are worthless. The cattlemen hated to see their ranches broken up for farming in the first place. They were excellent grazing lands. However, there was no practical way for the ranchers to resist the pressure of inflated land prices. The newcomers were not exactly jubilant, either, in the end. After foolishly investing their all in a risky type of farming in a hazardous area their fate was sealed. They were generally forced out by the failure of their farming methods and low prices. In spite of the fact that each new wave of settlers was equipped with better crop varieties and better farming machinery than the one before, their "get-rich-quick" frenzy always led to overstepping the natural bounds. The little speculator hasn't a chance.

Alternately settling and abandoning this territory is getting us nowhere. Going broke is bad for people. It is wasteful of human effort. However, people are mobile. They can, theoretically at least, always go somewhere else and start over. But the poor land can't. It's stuck! It has to make a new start right where it is after each abuse and abandonment.

The lucky strikes that have been made in wheat along this ragged edge of the farming belt have never compensated for the lost use of the land for grazing during the lengthy recovery periods.

"Why doesn't somebody do something to stop this senseless folly?" you may ask.

The answer is that as long as American style freedom prevails and such vacancies open up in a region about which there remains much wide-

Emergency cover. Cane and Sudan grass, listed on contour at suggestion of the Soil Conservation Service, brought the first control to area around these good farm buildings in South Dakota in 1937. Two years before, the soil had drifted up to 6 feet deep around these barns and the place had been abandoned.

Man leans against wind. But contour blank-listed furrows protect this field and collect soil blowing from unprotected neighboring field. Oklahoma fights, too!

spread ignorance people will jump at the chance to swallow the sucker's bait. To buy cheap and sell dear is an ancient and honorable occupation. The large land dealers who bought during the depression were not exactly speculating. The land was worth the low prices they paid. The real gamblers are the small ones now busy.

Restraint is not the best remedy. It proves too uncertain. If backed up by a strong and intelligent majority it could be made to work. But if land owners and operators were universally intelligent, informed, and understood both sides of the problem, there would be no need of restraint.

A more logical and permanent remedy would be the development of an intermediate type of agriculture to use marginal land. This land is just as capable of being efficiently operated as any other land, provided the demands made upon it are kept within its natural moisture and fertility capabilities. Ranching is not intensive enough to resist

temporary economic pressures; while grain farming is too intensive for the physical limitations of the land. A special type of agriculture for marginal land is needed. It must use the land more intensively than ranching and at the same time more safely than grain farming. Men of stable character and more patience than those who ride on waves of speculation will be needed to work this out.

It may be hoped that the several state agricultural colleges and the agencies of the United States Department of Agriculture will combine forces to promote effectively such an aim. In the meantime, the Southern Great Plains Agricultural Council meeting last January in Denver recognized the imminent danger of the present trend. Their resolutions to Clinton P. Anderson, Secretary of Agriculture, strongly recommended applying the brakes to the marginal land boom. The facts of land capability in this questionable area should be given freely to the public. Farm credit should be carefully administered so as to prevent contributing to unsound farming enterprises. The Government should retain ownership of restored lands that are subject to hazardous usage.

If these measures were vigorously applied the best we could hope for would be to soften a little the severity of the crash in which the present runaway situation is almost sure to end.

There are a few people in America who feel that the landed heritage of the Nation is too sacred a thing to play tricks with. But leaving out all sentiment, there is a cold business proposition to be considered. A rather important block of our national productive capacity lies jammed up against this trouble zone. The fact is that millions of acres of the best land are intermingled with hazardous areas. This proximity is a recurring threat to the important and far-flung dry farming industry.

Dry farming does successfully occupy the highly durable soils of the 17- to 25-inch rainfall belt. This semiarid plains region, in contrast to the adjacent arid ranges, is good farming country. This large area is pretty evenly balanced in moisture and soil fertility supplies. This natural balance is an essential factor in producing crops with the least possible drain on soils and invites the efficient use of labor. With barely enough rainfall to make the land produce creditably the problems of soil leaching and washing are comparatively light.

The Great Plains region is not fully appreciated. It is good country when properly handled for sustained grain and livestock production. It should be added that there is no valid physical excuse for dust storms.

We know enough from practical experience over three generations of coming and going in the plains to value accurately its assets and liabilities. We will have nobody to blame but ourselves if we keep on making a mess out of it.

Wind erosion control is no longer an unsolved problem. For those who know how, it is easier than keeping the soil from washing away. Experienced plainsmen are not likely to run dangerous risks, but Heaven protect us from another invasion of greenhorns!

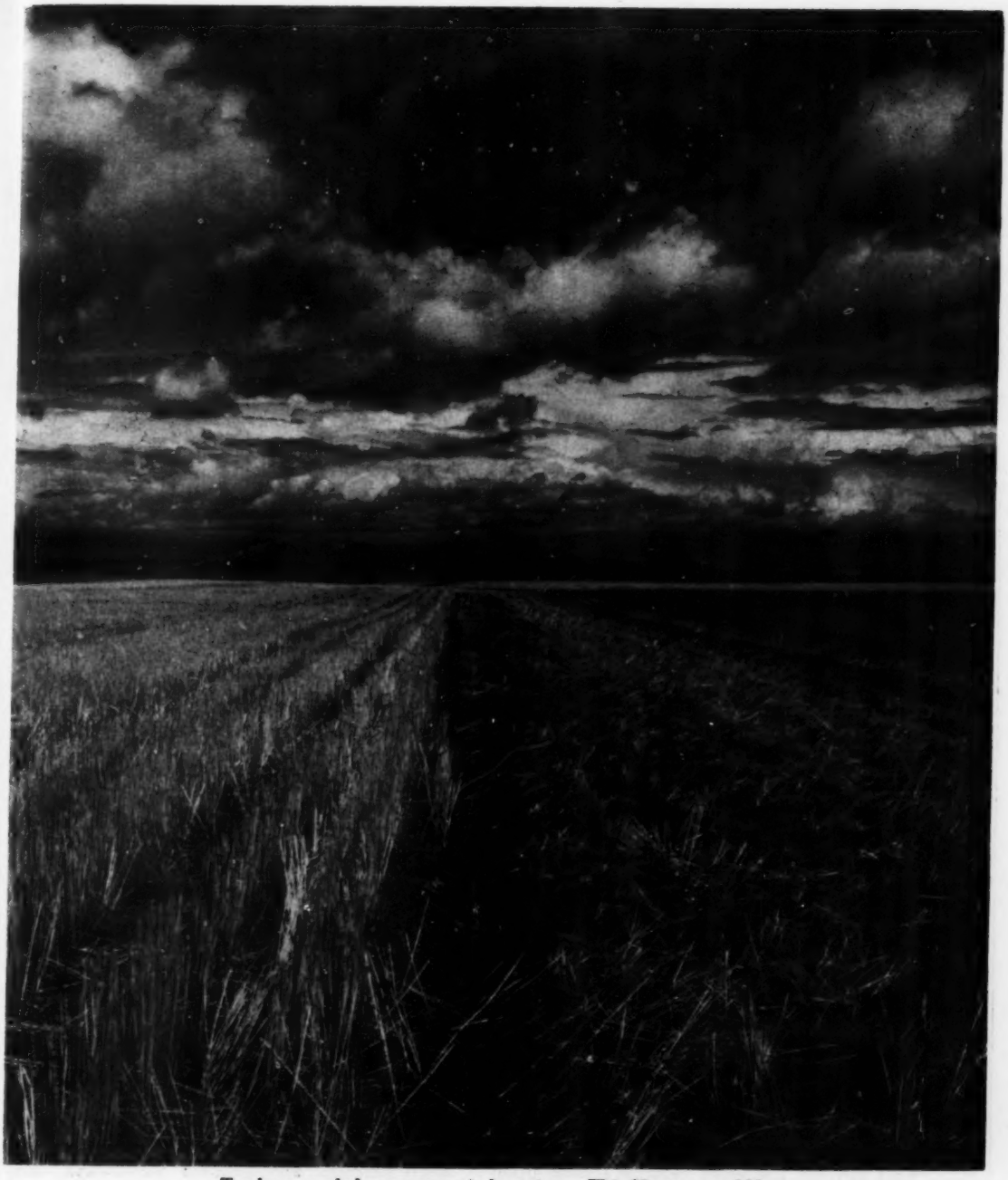
HEADLINES IN SCHOOL ANNUAL

Conservation farming is making the headlines again. This time it is in the Arrow, 76-page school annual just published by the schools of Osage City, Kans.

The Arrow is really a community yearbook, and covering activities of the pupils in grades 1 to 12 inclusive. Contents include public interest stories on the leading community organizations. In this group is a double-page spread on the Osage County Soil Conservation District, with special attention to the Soil Conservation Service. This year is the first time the District has been mentioned in the publication. The inclusion indicated that the school kids are awake to the importance of soil and water conservation.

One page features the Board of Supervisors. The other page banners farming pictures showing the major conservation practices. It shows a terraced field with bromegrass outlets. The legend explains that the grass furnished hay and pasture, and helps control erosion. Another picture shows terraces holding water after a rain and the legend relates how the water was surplus and how the terraces permitted the water to leave the field without damage to the topsoil. Still another picture shows a stockwater pond with the pasture in the background. Its legend comments on the value of the pond and how it helps control grazing.

The attention which the yearbook accords the district represents careful work on the part of the high-school students.



Trashy cover helps prevent wind erosion. This Montana stubble is being given a going-over by a one-way plow, a method of tillage which helps to keep the soil in place.

This University Works for the Land

•By Wellington Brink Editor, *Soil Conservation*

CHIEF HARVEST of the land is Man himself.

From the soil comes the quality of his bone and muscle. What he is, what he does, how he does it, are determined by the acres that he tills. His courage, his ambitions, his very way of thinking, grow out of the furrows at his feet as truly as the wheat and cotton and clover he tends.

This oneness of Man with Soil is the important truth which activates the 2-day Annual Conference on Conservation, Nutrition, and Human Health. To this conference, called by Friends of the Land, come each June many of the country's topflight authorities in medicine, dentistry, plant and animal ecology, soil and water conservation, rural economics, philosophy, education. Together, these specialists fit the findings of science, as they seek to build the pattern of Man's relationship to his environment.

Again this year, June 29–30, the meeting was in Athens, Ohio, on the campus of Ohio University. To Ohio University, the first institution of higher learning to be established in the Northwest Territory, came nearly 200 men and women, each with pertinent information to contribute, each with an acquisitive mind. Teachers and scientists and professional leaders came not only from Ohio, but also from New England, from the South, from Minnesota and Missouri. Under the shade of the McGuffey elms, planted by Rev. Dr. William H. McGuffey, an early president of the University and the author of the famed McGuffey Readers, the conferees chatted of such matters as soil losses and lowering water tables, population pressures, productive capacity of land, organic matter in soil, nutrition's effect on teeth, the growth of children and the longevity of their elders.

As I strolled the green campus I came upon a great-limbed elm, mighty with memories. The trunk measured a good 7 feet straight through; the overhead spread of leaf, a full 120 feet. Noble survivor of the forest primeval, the burled patriarch stood as an eloquent reminder of the land that was, and exhorted all passersby to protect and make the most of the land that is. The rugged old elm—certainly one of the greatest yet remaining—once watched Mad Anthony Wayne push back the Red Man. It saw General Rufus Putnam and his surveying crew row down the Ohio and up the Hocking on business for his Ohio Company of Associates, soon after the Revolutionary War. It was getting to be an old-timer at the chartering of the University in 1804, when Greek, Latin, mathematics and the natural sciences just about encompassed the field of higher learning. It lifted its head proudly as the first two sons of the University were graduated in 1815; it saw one of those sons, Thomas Ewing go on to the United States Senate, later enter the cabinets of Harrison and Taylor and, still later, sit as close adviser to Abraham Lincoln. The old elm has been a spectator at the whole parade, has seen the wilderness cleared, the vigorous people build its homes and industries and culture, and has known the Republic's laughter and her tears.

Of cause for tears, there has been much: the brutality of ill-used axe and plough, the removal of the vegetative mantle, the pilfering of organic and mineral materials from the soil. Today, however, the vast, wise elm smiles more happily, for Ohio University is planting, with true McGuffey fervor, the seeds of a brighter tomorrow.

With every day the University consolidates its position as a pioneer in conservation education. Outdoors and indoors, it teaches the conservation of natural resources. Next year on the very slope that lies beneath the giant elm there will be a miniature conservation farm, with terraces and grassed waterways, strip crops, contour cultivation, wildlife spots and perhaps a pond, all done to scale.

Last year the University was host to still an-

other conference—the important Conference on Conservation Education. School administrators and teachers spend 3 days examining the available knowledge on the husbanding of soil, water, minerals, forests and wildlife, and discussing their responsibility for doing something constructive about conservation education.

And now, for the second straight year, the University has been the home of the Conference on Conservation, Nutrition and Human Health. Opening feature of this conference was a visit to the projected Athens Forest Park, just 8 minutes east by automobile from the campus. The park is an ambitious 5,000-acre undertaking in the heart of one of Ohio's problem areas. It's yet in the appraisal and planning stage. The State has appropriated $200,000 for purchase of land and for development. The building of a dam is contemplated—a dam which will impound a 190-acre lake, the waters from a 7.3-mile drainage area. One section of the park will be for public use—swimming, fishing, boating, picnicking. The remainder will be primarily for the use of University students, who thus will have ideal conditions for field work in conservation, geology, botany, biology, and plant and animal ecology.

Speakers at the conference sessions included Dr. John C. Baker, President of Ohio University, who welcomed the visitors; Rev. Father Leo R. Ward, Professor of Philosophy, Notre Dame University, author of "Ourselves Incorporated," who discussed the cooperative movement; Dr. Frank A. Gilbert, of the staff of the Battelle Memorial Institute, who reviewed the literature dealing with the relationship of soil to plant and animal growth and health; Dr. Emil Truog, Professor of Agronomy, University of Wisconsin, who talked of the problem of organic matter in the soil.

Dr. Ouida Abbott, Agricultural Experiment Station, University of Florida, examined the results of a deficiency of iron, copper, and cobalt. Dr. Fred D. Miller, Altoona, Pa., looked into the role of nutrition in the production of a sound dentition. And Guy Irving Burch, Director of the Population Reference Bureau, presented the problem posed by increasing world population and decreasing world resources.

Dr. Edward Graham, Chief Biologist of the Soil Conservation Service, talked about the capacity to use our land. Dr. James Asa Shield, Medical College of Virginia, addressed the conference on the "Psychological Behavior of People in Relation to Soil Fertility." Dr. Alice Chenoweth, Kentucky State Department of Health, took as her subject "The Nutritional and Chemical Growth in Childhood." Dr. John Sexton, Jr., St. Louis, had as his topic, "Nutrition, Growth, and Their Influence on Longevity."

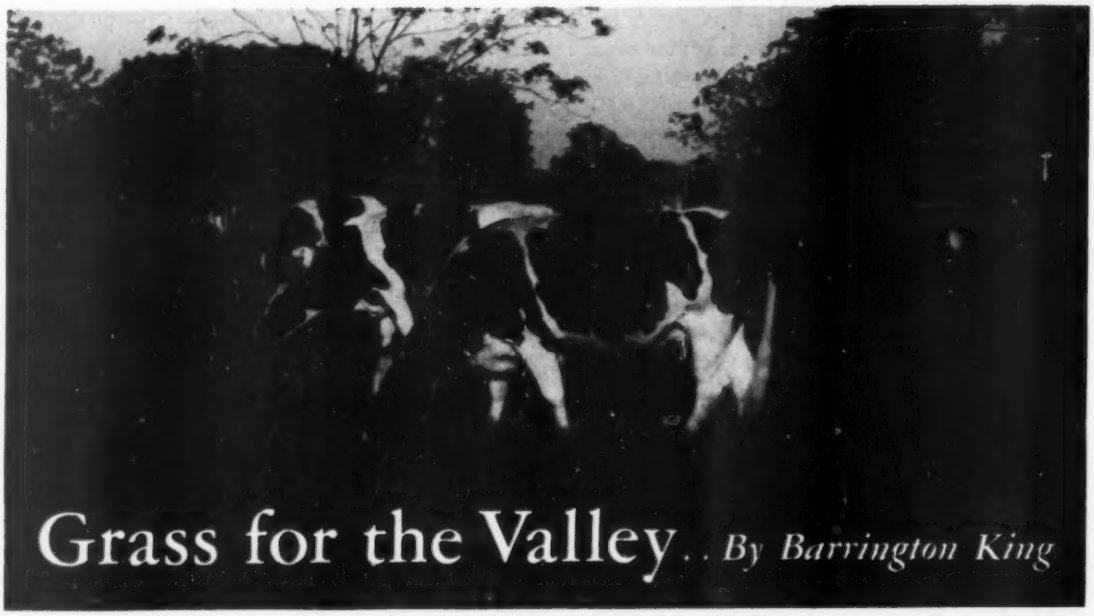
"The Church in Rural Reconstruction" was the subject of a paper by the Rev. Mr. Eugene Smathers, Black Lick, Tenn., who is secretary of the companion society, Friends of the Soil. "Utilization of Our Rivers" was discussed by Lachlan Macleay, President of the Mississippi Valley Association.

One of the most valuable contributions was the personal interpretation of the conference with which Dr. Jonathan Forman, Editor of the Ohio Medical Journal and Vice-President of Friends of the Land, concluded the sessions.

As opportunity affords, *Soil Conservation* proposes to salvage for its readers some of the more important materials of the conference.

In the meanwhile, it is pleasant to reflect that the patience of the fine old campus elm is being rewarded. After two, or perhaps three, conturies of bewilderment at the strange and costly vagaries of the human race, the great burled monarch of a once fair land now can take comfort in the upsurge of conservation education, conservation leadership, and conservation understanding.

Friends of the Land is a non-profit, non-partisan society for the conservation of soil, rain and man. If interested, write to Ollie E. Fink, the Executive Secretary, 35 East Gay St., Columbus 15, Ohio.



Grass for the Valley . . By Barrington King

THE THREE Comer brothers, Alabama textile mills executives, are ardent backers of soil conservation because they have seen it pay on their own land. They propose to "roll out a green welcome mat to Alabama and the lower South."

The green welcome mat which the Comers urge would be of grass and clover, grazed by fat dairy and beef cattle. And it would extend for 100 miles—from Chattanooga to Gadsden—through the valley between Lookout and Sand Mountains.

Sons of the late Gov. B. B. Comer of Alabama, the brothers are following in his footsteps in agriculture and industry. Donald of Birmingham, is chairman of the board of a chain of textile mills in Alabama; Hugh, of Sylacauga, is president and treasurer, and Bragg, of Alexander City, is chairman of the finance committee.

To understand the brothers' interest in agriculture, you've got to know how they see the relationship between agriculture and industry. Hugh talks in simple, down-to-earth terms of cotton, clover, cows, customers and conservation.

Cotton is needed to make the denims, tickings, and chambray which are the products of the plants at Sylacauga, Alexander City, Birmingham, Stevenson, and Sycamore. But the Comers figure that a cotton hoe hand, eking out a bare living from eroded soil, doesn't make enough money to buy these products. So that's where the cows come in.

Holsteins graze the lush growth of one of the rotation pastures on Avondale Farm.

The Sylacauga plant has had a dairy herd for 40 years. About 11 years ago, Hugh Comer got the idea of improving the herd of grade cows. He bought a registered Guernsey bull, a bull calf, 3 Guernsey cows, and 2 heifers. But buying 6 to 10 carloads of alfalfa hay a year to feed the herd was still an expensive proposition.

So clover and conservation entered the picture, along with such other grazing crops as small grain, annual and sericea lespedeza, Dallis grass, Sudan grass, Johnson grass, Italian ryegrass, and bluegrass, to round out a complete year-round grazing program.

Row crops have disappeared entirely from Avondale Farm. Four 200-ton silos that used to be filled to overflowing with corn silage won't be used at all this year.

When the farm held a field day early this year, 400 farmers from the surrounding neighborhood—and some visitors from as far away as Boston—came to see cows grazing on Avondale pastures in January. Just to make the pastures show up to best advantage for the event, the cows had been taken off grazing during December.

NOTE.—The author is chief, regional information division, Soil Conservation Service, Spartanburg, S. C.

The pastures looked fine. But although the ration of concentrates was doubled for the milk cows during that period and the herd was fed silage, along with Johnson grass and lespedeza hay, the milk production dropped from 1,400 pounds a day in November to 950 pounds a day in December for the 51 cows then being milked. It was 2 weeks after the cattle went back to grazing in January before milk production again reached 1,400 pounds a day.

That experience gave Comer even more confidence in the possibilities of a year-round grazing program. He doesn't see why farmers throughout that section of Alabama can't have the same kind of grazing program as Avondale Farm. He figures they would make a lot more money from cows than they do from cotton—and so he gets around to the customers again.

If you think it's strange to hear a cotton manufacturer urging local farmers to raise cows instead of cotton, he'll hasten to assure you that he's not worried about the cotton supply. It will be produced somewhere. It'll be mechanized production, with flame weeders and mechanical pickers doing the work of human hands. But that's all the more reason to think about the customers, he believes.

With a small herd to begin with, it doesn't cost a great deal to go into a grazing program. Indeed, it actually saves money, he contends. He cites the experience of Avondale Farm to prove this.

Here are the simple facts:

"In 1938 we milked 35 cows. Now we are milking 55. At that time we were filling four 200-ton silos with corn ensilage. Last year we had one silo only partly filled, and this year they'll all be empty. We used to buy 6 to 10 cars of alfalfa hay each year. Now we buy no hay of any kind.

"But here's the pay-off. In 1935 the production was 600 to 800 pounds of milk a day. Now it's 1,500 pounds a day. That's a big increase, even when you consider we've improved our herd. We're making a nice annual profit per cow. Not one penny of new capital has been invested."

One thing that Comer insists on, is that nothing be done on Avondale Farm that the average farmer couldn't do. The textile mills could furnish the money for a lot of fancy buildings around the place or for a new registered bull now and

Guernsey cows resting in 10-acre permanent pasture of white Dutch clover and Italian ryegrass.

Crimson clover in one of the Avondale Farm pastures interests Donald and Hugh Comer.

then. But Comer doesn't want any fancy buildings and the money for new bulls has got to come from the sale of culls and calves.

In developing the present program, Avondale Farm has had the assistance of virtually every agricultural agency in Alabama—assistance that is available to any farmer in the State.

In April 1941 technicians of the Soil Conservation Service assigned to the Coosa River Soil Conservation District helped develop a complete conservation plan for the farm, with emphasis on grazing crops. Some labor assistance was furnished by the old CCC camp at Talladega which at that time was assisting in the district program.

Every opportunity has been used to earn AAA payments, which have been taken up in basic slag, superphosphate, and seed for pastures. Advice and assistance have been furnished by the United States and State Forest Services on fire protection, and by the Agricultural Extension Service and Experiment Station on developing the grazing program. In 1944 Sidney Davenport, manager of the dairy unit, visited the station at Bell Mina with the county agent and a group of farmers to observe work with crimson clover and pastures.

Everywhere—in the mill village, as well as on the farm—you see evidence that the Comer brothers are living up to the definition of the function of industry which was given several years ago by Donald Comer.

At a conference on human relations in industry the question had been asked, "What is the aim of industry?" Donald Comer gave the following reply:

"The function of industry is to take certain things that grow on the surface of the earth, or are buried beneath the surface, and convert them into sizes, shapes, and colors that the public wants; and to do this at the lowest possible cost, without any exploitation along the route."

Donald Comer, "the big boss," takes a lot of interest in the farm at Sylacauga and generally goes out with his brother, Hugh, for a look around when he comes over to the Sylacauga plant. J. E. Warren, vice president of the Sylacauga plant, and Sidney Davenport usually go along.

Out in the green fields, cotton fabrics are forgotten.

In the old bottomland pasture across the creek, the bluegrass seeded last year is coming along fine and is putting out a lot of seed heads, someone observes. Dallis grass, white clover, crimson clover, hop clover, and common lespedeza are found on this 127-acre pasture that used to furnish the only grazing on the farm.

The 358 acres of grazing crops now include, in addition to the original pasture:

31 acres of hillside pasture planted to sericea in 1946 with white and crimson clover and Dallis grass in the low places. Korean lespedeza and ryegrass were seeded in 1944. This area furnishes winter and spring grazing.

24 acres of crimson clover and barley which was planted in August last year and fertilized with 150 pounds of 4–10–7 per acre. It was grazed during November and from March 10 to May 1 this year.

20 acres of crimson clover, ryegrass, and Johnson grass, grazed from early January to March 10. The clover and ryegrass reseed each year and the Johnson grass is cut and stacked in the field for hay. It was fertilized with 300 pounds of superphosphate per acre this year.

25 acres of vetch and oats and Johnson grass, grazed from early January to March 10. Sudan grass is planted when the oats are harvested and is cut with the Johnson grass and stacked in the field for hay. The land is harrowed in the fall and planted to oats and vetch. It was fertilized with 125 pounds of ammonium nitrate per acre this year.

15 acres of oats and lespedeza, for grazing as needed. Oats are reseeded in the fall and lespedeza in the spring.

11 acres of barley, crimson clover, and Johnson grass, with Sudan grass planted for emergency grazing.

10 acres of white clover and ryegrass, grazed throughout the year, except for rest periods during dry weather and when the clover is seeding. Reseeded to rye grass every fall.

40 acres of Korean lespedeza which is cut for hay in July and then allowed to reseed. It was fertilized with 200 pounds of superphosphate per acre in 1944.

On 55 acres formerly planted to corn for silage, grazing crops will be sown this fall.

The 358 acres of rotation pastures furnish ample grazing for the herd of 120 head, even during periods when the pastures are lowest in production. During most of the year the ground is covered with a rank growth of grasses, clovers, and other legumes that rarely show the effects of graz-

ing at all. Erosion is almost completely controlled by the dense growth of pasture plant.

The mixed herd of 120 head includes 15 purebred Guernseys and 15 purebred Holsteins. The remainder is composed of half-breeds and grades. With milk production of approximately 1,500 pounds of milk per day from the 51 cows they were milking this spring, the milk cows are fed about 500 pounds of concentrates, or approximately 1 pound of concentrates to 3 pounds of milk produced.

The oats in the concentrates are produced on the farm, but the corn and cottonseed meal are bought. Comer says they can buy the corn as cheaply as they can grow it, and he would much rather have the land in pasture than in row crops. The silos—once the trademark of the more progressive farmers in the South—now stand empty, as signposts along the highway of a new agricultural development.

A similar program to that in operation on the dairy farm at the Sylacauga plant has been started at the mill at Sycamore. There 300 acres in grazing crops are furnishing feed for 108 head of beef cattle. Quality of the herd is being improved by breeding grade cows to good bulls.

Hugh Comer believes that a sound grazing program not only can revolutionize the agriculture in that section of Alabama, but also that it will provide the purchasing power that will attract new industries that will bring more payrolls and result in a better balance between agriculture and industry.

But grazing crops can do more than that. They can cover the eroded land that now stands out in great blots across the landscape in that section and turn it into a carpet of green—for 12 months in the year. Visitors from the north and east passing through that section to spend the winter in Florida would certainly get a vastly different impression of the potential industrial opportunities from a scene like that, he contends.

With soil conservation districts covering the entire State of Alabama, farmers in every county in the State have facilities for developing a sound grazing program. But Hugh Comer has in mind especially the narrow valley that extends from Chattanooga to Gadsden, a distance of 100 miles, flanked for the entire distance by Lookout Mountain on one side and Sand Mountain on the other.

This narrow valley, averaging about 2 miles in

(Continued on page 44)

MAN'S MARK ON THE LAND

By George R. Free

MAN LEAVES his mark on the land. The difficulty of concealing troop and equipment movements, gun locations, and the like, from aerial observation will not be fully appreciated until one has seen how practically every mark that man or nature puts on the land is apparent from the air. You can readily see the wheel tracks where a farm tractor made a turn, and, you can easily see also the pattern of thin soil and vegetation caused by past erosion, as well as the rills and gullies from more recent damage.

When one sees from the air a pattern consisting largely of straight lines, he can say with a considerable degree of certainty that man has made his mark on the land. Flowing water attempts to follow these straight lines and thus makes the mark of man more permanent. When we sign our names on paper, few of us use the "mark" made with two straight lines. Instead we write our signatures with lots of curves. We need more "writing" on the land and fewer "marks." From now on when I hear the cawing of the flying crow, I'll know that I am listening to his Bronx cheer directed at our illiteracy.

EXPERTS IN MEMBERSHIP

Two directors of the newly formed Steuben County Soil Conservation District, in New York, will certainly know all the answers. They are Francis Potter, Hammondsport, and Ralph French, Avoca—both former Soil Conservation Service technicians.

Potter, who now operates his own farm, was formerly district conservationist with the Schuyler County Soil Conservation District. Besides operating his farm enterprise, he is also farm manager for the Pleasant Valley Wine Company.

French, former district conservationist in Ontario County, now runs a dairy and general farm.

The Steuben County District received its certificate last spring and became the twenty-ninth district in the State. It is in a general farming, dairying, potato, and vineyard area. District headquarters will be at Bath. Cortland County district became New York's thirtieth 2 weeks later.

Teamwork Solves a Problem

By Clay E. Wilson and J. A. Smith

TO THE SOIL CONSERVATION district supervisors of Oklahoma's central Washita River valley the problem was plain. Equally plain was the solution. The trouble was: Where were they going to get the tools?

The problem was to tie down the soil on the Washita Valley's badly eroded slopes and make it productive again. It had been one of the richest soils in the world at one time, this Oklahoma earth—a red sandy loam, mellow and deep. People like Will Tims, chairman of the Grady County board of district supervisors, could remember. He was 8 years old when he first saw this country—peering out from under the hood of a covered wagon, 60 years ago. The wagon plowed through a sea of grass, lush and thick, reaching to the horses' bellies in places. Wild game was everywhere. The streams ran clear. Then they sent their ploughs through the virgin soil, and the bottom lands turned out magnificent crops of corn and cotton. So did the hillsides—for a while at least.

And then, of course, it began—the same old erosion pattern that had begun on the Eastern seaboard and followed the settler west. The corn and cotton couldn't hold the soil on these slopes any more than they could on the Piedmont hills, hundreds of miles to the east. The hillsides washed and gullied; wind carried off the fertile topsoil in clouds; yields dwindled; sterile subsoil washed down and damaged bottomlands.

The floods began to come, each year more destructive than the last. One year in the early thirties 17 people were drowned.

The farmers rallied to fight back through their soil conservation districts. Soil and water conservation measures were pushed forward on all sides. But most everyone suspected that the most important thing to do was to put the slopes back into grass on a vast scale—to make them as they were in the beginning, when the little creeks ran clear. In 1944 an intensive study of sound land use confirmed what people had been thinking, and it was decided that from here on out the soil conservation program would emphasize reestablishing native grasses on badly eroded steep slopes that had been in cultivation, and on odd or inaccessible acreages. And this should be done immediately, if much of the land was not to be sacrificed.

The trouble was: The proper tools for doing a job of this size had not yet been invented, and the methods currently available were not efficient. The fact that there were so few grassed acres in the whole area proved that. These had been sodded with bermuda roots, or seeded with native grasses by broadcasting or planting in rows with a cotton planter. But these measures couldn't possibly be used to revegetate half a million acres. It would cost too much—in money and time. What was needed was a machine drill. And there was no drill on the market which could handle the tiny or chaffy grass seed.

It wasn't only the Washita Valley, of course, that needed such a drill. Requests for a grass seed drill had poured in to the Soil Conservation Service from all parts of the country—which was why SCS set out to develop one at its nursery in Woodward, Okla. By the spring of 1944 a successful drill had been built, and blueprints made available to the public.

It was this first drill that the Grady County Soil Conservation District used in that same spring of 1944 to plant a small amount of seed. The drill worked perfectly. The next year two small models of the new drill were borrowed from SCS by six conservation districts—Canadian-Walnut, Grady County, Stephens County, Jefferson County, and North Caddo County, and South Caddo County. An idea of the value of the new drills can be quickly obtained by considering the fact that in that one season 5,161 acres were put into grass as compared with 11,000 acres for all previous years.

But two borrowed drills weren't enough. To push the work forward at the required speed the districts figured they needed at least seven. The Chickasha Chamber of Commerce had authorized the building of one drill, the Grady and the Stephens County Soil Conservation Districts two each, and the South Caddo County and the Canadian-Walnut Districts one each.

NOTE.—The authors are district conservationist, Soil Conservation Service, Chickasha, Okla., and information writer, Soil Conservation Service, Washington, D. C., respectively.

The materials for these drills, where were they to come from in this time of war scarcity? And the parts? And who was to build them with machine shops overworked and undermanned?

The supervisors didn't know. All they knew was that somehow the drills *were* going to be built. First, they scouted around for parts. Secondhand grain drill frames were salvaged, automobile transmissions picked up here and there. Cotton planter boxes, discs and press wheels were ordered. Assured of the parts, an iron works in Chickasha finally agreed to build the drills. Averaging about $300 each, cost of the drills was shared by the several districts. A small per-acre fee will liquidate the original cost and provide funds to build more drills.

Everybody felt plenty good as the last drill rolled out of the factory early in February of this year. The Chickasha Chamber of Commerce gave a victory luncheon for the supervisors. Then they loaded the drills on trucks and sent them off to begin their work on the worn-out fields.

But the supervisors' troubles still weren't finished. There wasn't enough of some of the better grass seed because of last year's unfavorable harvesting weather. The supervisors solved this by appealing to the local farmers, and the shortage has by now been largely overcome. Local farmers have found that with certain adjustments and adaptations combines can harvest grass and legume seed—which bring good prices.

The districts are also furthering the program by buying rotary fresnos for farm tractors in lots of 5 to 10 for resale to district cooperators. Phosphate in carload lots is being brought in for the depleted soil, along with nitrogen for speeding grass growth in certain areas and for fertilizing fish ponds.

District supervisors don't get paid for their work. But they do get something in return. Bill Walker tells about it. From his front yard he can see two watersheds. One is not part of a conservation program. It floods with every major rain. The other used to flood regularly once or twice a year until it was taken into a coordinated soil conservation program. To date it has had but one flood in 6 years.

"Things like that make you feel maybe you're doing something worth while," Bill Walker says.

Cattle of medium quality on heavily grazed range near Walsenburg, Colo.

IMPROVED *RANGE* — MORE *BEEF*

By Kenneth W. Shanks

"THOSE yearlings look like they've been in a feed lot."

Actually, the yearlings in question hadn't seen a feed lot when this remark was made last fall. But because of a deal which their owner made with his neighbor, they had spent 6 months on a range quite different from the one to which they were accustomed. The result brought a big surprise to their owner, and it proved several points for the Upper Huerfano Soil Conservation District, out in Colorado.

Last June, Jake Hribar and Ernest Wadhams, Walsenburg ranchers, agreed to work with the district in a cattle-weight comparison test. Hribar weighed one bunch of his yearlings, placed half of them on Wadhams' ranch and turned the other

NOTE.—The author is district conservationist, Soil Conservation Service, Walsenburg, Colo.

View of Hribar pasture, across the road from that of Wadhams. This pasture is in "fair" condition and contains almost the same species as the "good" pasture, but in different proportions.

half back on his own range. At the same time, Wadhams weighed a sample of his own yearlings and kept them on their home range.

Last October at completion of the test the cattle were weighed again. Hribar's yearlings on his home range made an average daily gain of a pound and a quarter. Those which he placed on Wadham's ranch gained an average of 2 pounds a day.

The two ranchers shipped at approximately the same time. Wadham's received an average of $100.69 for his steers, while Hribar received only $74.47 on the average for his top animals.

The difference in performance corresponds to the difference in range. The ranches are across the road from each other, and the soil and climate factors involved are identical. The Hribar range was in what specialists call "fair" condition, with only 20 percent of the ground covered by desirable grasses, while the Wadhams ranch was in "good" condition, with 40 percent of the ground covered by desirable grasses. Wadhams' forage yield was nearly twice that of Hribar's. Whether range condition is "good" or "fair" depends on its management.

Ten years ago Wadhams started a program of moderate grazing. He added other parcels of land to his original ranch, and found the new areas heavily infested with three-awn, snakeweed, and other undesirable plants. After grazing these fields lightly, he discovered that 80 percent of the snakeweed could be choked out in 3 years. The good grasses, blue grama, and western wheat grass, thrived and increased in foliage and density. Since Wadhams acquired this additional range, the amount of good grasses in the forage stand has changed from 40 to 80 percent. The unpalatable plants decreased from 55 to 20 percent.

An inspection of forage was made at the end of the weight tests last fall. It was found that the "fair" range had been grazed about 20 percent more than is correct for the good grasses, while the "good" range had been grazed about 75 percent of its capacity. This use explains the difference in weight-gain made by yearlings produced on the "fair" and "good" ranges. It also tells why Hribars' animals grazed on the "good" range weighed 40 pounds more than the ones left on the "fair" range.

Still another story was brought out in this weight test. Ten years ago, in 1935, Wadhams decided to use bulls from registered stock instead of those out of his herd. As a result, his breeding

herd has good markings and better conformation, and puts on better gains. His yearlings averaged 590 pounds on June 15, as compared with about 532 pounds for the yearlings from average sires. Wadhams' better-bred animals weighed out at an average of 775 pounds as compared with 740 pounds for the others.

Thus, the test made by the district and the two ranchers compared three different things. It compared the gain of yearlings grazing on heavily grazed range in "fair" condition against the weight gain of yearlings placed on moderately grazed range in "good" condition. Next, it showed the gain made by yearlings moved from a "fair" to a "good" range, and finally, it compared Hereford yearlings bred from home-raised bulls with yearlings from registered bulls.

Comparisons of weight gains, together with annual grazing inspections of the forage, are being used by the Upper Huerfano district in an effort to help Huerfano County ranchers improve the condition of the range land, and ultimately the value of their herds and the income from their operations.

View of Ernest Wadhams pasture, showing range in "good" condition. Blue, grama, western wheatgrass, snakeweed, and cactus plants are prominent.

"THAT'S THE WAY TO RUN A DISTRICT!"

By Frank H. Mendell

A PERFECT attendance at all district commissioners meetings for 2 years is the record of the West Pottawattamie County District, out in Iowa. Public notice was given of the first meeting in April 1944. Farmers in the district were invited to attend and discuss district problems and their solutions.

Later, the commissioners decided that, except in the winter months when bad roads made night travel difficult, the meetings should be held the last Friday of the month at the homes of commission members. The wives and children have been almost as regular in their attendance as the commissioners themselves.

The regular meetings have also been regularly attended by District Conservationists Walter Weiss, Arthur Thoreson, Farm Planners R. G. Bullard and C. W. Renaud, County Extension Director Cliff Johnson, and Earl New, farm editor of the Council Bluffs Nonpareil.

"At our first meetings we agreed that if we were to make the best use of our time and the time of

Top, left to right: Clifford J. Johnson, county extension director; Richard G. Bullard, Council Bluffs; Arthur S. Thoreson, district conservationist. Bottom: Don Anderson, Honey Creek; W. C. Strohbehn, Neola; Ernest Harms, chairman, Underwood.

Soil Conservation Service personnel, all educational work and planning must be done in groups," said Commissioner Don Anderson. To call this to the attention of the public a special meeting was held at Underwood, Iowa, December 14, 1944, honoring the 19 farmers in Group 1 who had developed conservation plans (100 percent of the farmers in the watershed signed up). About 100 other farmers were also present. Frank Mendell, state conservationist, Chris H. Jensen, chairman of the State Soil Conservation Committee, Harry Linn, State Secretary of Agriculture, Carl Smith, extension supervisor and R. H. Musser, regional conservator of the Soil Conservation Service, spoke briefly at this meeting.

At times we have invited the County Board of Supervisors, representatives of civil groups and of other governmental agencies to meet with us to discuss mutual problems and work out plans for the jobs to be done. These meetings have resulted in demonstrations on highway erosion control being established, conservation speakers appearing before the Kiwanis Club, etc.

Eight groups were organized in 1944 and 21 farm plans were completed.

Thus far in 1946, 5 groups have been organized, 12 farm plans completed and we have on file 182 additional requests for farm plans.

GRASS FOR THE VALLEY

(Continued from page 39)

width, is traversed by a main highway and a railroad, which provide the chief arteries of travel into Alabama from the north. The entire valley is visible on each side throughout its 100 miles of length. A finer show window for soil conservation cannot be imagined, Hugh Comer says.

What he would like to see is for State and local chambers of commerce, bankers and other business groups, civic clubs, farmers, soil conservation district supervisors and others to get together and roll out a green welcome mat to Alabama from one end of this valley to the other. He's confident it could be done, because he's done it on a small scale on Avondale Farm, and made it pay.

FOOD CHAINS AND LAND USE

"We must plan how to use our land to its full capacity," Dr. Edward H. Graham, chief biologist of the Soil Conservation Service, told the Conference on Conservation, Nutrition and Health in Athens, Ohio.

"There is a new group of scientists called ecologists. These men are familiar," Dr. Graham explained, "with man and his relationships. They know about food chains from the bacteria in the soil on through to man. They know about the pyramid of numbers. In other words, the number of what kind of animals can live in dependence upon how many of another species. They recommend the fertilizing of a farm pond for fish production because they know that the fertizlier is the foundation of the food relationship that proceeds from the nutrients in the fertilizer to the microscopic plants to minute invertebrates to insects to fish that finally reach the table as food for man. Almost everything we do with the land involves a similar chain of influences. The New York child may never associate milk from the bottle with cows. The condition of the soil underlying the pasture upon which the cows graze is even more foreign to him. Yet the soil determines the nutrients available to the grasses in that pasture and the quality of the grasses affects the cows that feed upon them and the meat and milk that they produce. The quality of the milk determines the health of the child. Hence, land use is important to the child in the metropolis who may never see a blade of grass growing."

REVIEWS

NEW WORLD TO WIN. By C. J. J. Van Rensburg and E. M. Palmer. Bloemfontein, Union of South Africa, 1946

When told that we in America are delighted to have his book, that we feel we can learn more about South Africa from it than from a dozen others—scientific, travel, and otherwise—Van Rensburg was only mildly interested.

"We didn't write it for Americans to learn about South Africa," he said to me in Washington the other day. "We wrote it for the children of South Africa. It's for young bushveld Zulus. It's for European farm children, and for blacks in the kraals of Basutoland, Swaziland, and other native states. It's for children of the Karroo and Free State where multitudes of hungry sheep and goats have turned good ranching country into rocky desert. In South Africa we do not have a country-wide soil conservation program. We have only a few patches of real conservation, and thus far there is no way to spread it as you are doing in the United States."

"When we wrote the book," he continued, "we hoped we could make a beginning toward educating the young natives, at least get them to understand what is happening and show them a few things they can do to stop the terrible erosion and the drying up of water sources."

For years this man Van Rensburg has been the apostle of soil conservation in his native land. As soil erosion expert with South Africa's Department of Agriculture, and as a private citizen deeply concerned about the Union's devastated lands and low food production, he knows every corner of the country. His stirring motion picture of uncontrolled erosion—*South Africa in Danger*—has had wide showing, and his persistent harping about drying rivers, parched, denuded grazing country, mountain slopes gullied to ribbons, and underfed people in the midst of money wealth has aroused many of his fellow countrymen to the urgent need for an all-out attack against erosion. Under his charge and direction, the Rust der Winter and Kietondale experiment stations have been developed into excellent soil conservation demonstrations which today are striking evidence that a great part of South Africa's wasted and barren land can be restored if effective measures are taken in the immediate future.

Van Rensburg, called "Van" by his friends in this Service, is now in the United States studying all phases of our soil conservation program. "Your work in soil conservation districts I must see," he says.

Co-author Eve M. Palmer, of the National Veld Trust, a private conservation association, has had much to do with conservation education in her country. In her writings, you get the feel of the land and people of that far-southern nation. You know the witchdoctor claiming credit for a brief shower upon a burnt mountain farm. You find the bitter karoo bush from the desert country encroaching on the highlands "where the rivers are born," and natives stacking manure cakes to "cook our supper." Miss Palmer is known as a writer who can make Africans understand what she is writing about.

And so *New World To Win* is especially designed for those who have in their hands the fate of this southernmost nation of Africa—to a large extent African natives. In spite of the Union's mines, her fabulous cities built with diamonds and gold, more than half the population (8¼ million blacks and 2½ million whites) earn their living off the land. Yields of important food crops are among the poorest in the world, and in rural areas and on the fringes of cities real hunger and dietary deficiencies have become serious problems. By telling this authentic and intimate story of the rapid decline of the land and water of their country, for the youth of their country, the authors have performed a true service for South Africa. If *New World To Win* reaches those for whom it is intended, it should do great good.

The text has extraordinary simplicity. It is perhaps the simplest and clearest book of its kind ever printed. It makes the people and animals of South Africa one with soil, water, and vegetation. That in itself is an achievement of note, as conservation writers and educators everywhere will agree. For example, by reducing the scientific equation of "capillary attraction" to the common denominator of the "mealie patch" hanging precariously from a Drakensburg cliffside, in one-half page, the authors put themselves 'way out in front in the difficult business of explaining the balance of nature for Nature's own children.

Extreme care was taken in putting the book together. There is first a section on food, with emphasis on the food habits of natives as related to present-day land conditions in the semiarid country. Then, soil and water and plants, and why the goat boy no longer can find browse for his herd and water and food for himself. And, with almost incredible skill, the authors have woven through the brief chapters the profoundly complex problem confronting South Africa today—the problem of the Orange River watershed stretching a thousand miles across the continent, with its denuded sources, its "bone-dry tributaries, and its silt-laden flood waters." It could have been no simple matter to show so vividly what is happening to the great river system and far-away valley lands, as well as close mountain slopes, when natives chop down all trees and

sweep clean the soil to build their hut towns on the very backbone of the mountains, cultivate the land around them, and "set fire" to get new green grass for their countless hungry animals.

The second half of the book is conservation farming; and here is the new world to win, if and when the people of South Africa learn enough about it to attack their problems wholeheartedly.

Free use is made of contrast, both in text and pictures, to explain simple soil and water conservation methods: good and bad veld management, the necessity for fodder reserves if cattle are to be raised in large numbers in future; rotations to maintain wheat, maize, and even sugar cane production; contour farming, strip cropping, terracing, where land must be plowed in that country "unsuited to a plough agriculture." In two pages the *why* of contour farming is explained. In one additional page the five steps of laying out the contour are set down in language any Transkei native girl can understand. "In the Transkei, the men don't work. They plaster their faces with mud and dance around," said Van.

Land reclamation may one day be a major work in South Africa, for millions of acres have been completely denuded of vegetation by burning, chopping, overgrazing, and steep-slope cultivation. Indeed the situation would seem quite hopeless were it not for those few places where modern conservation methods have been tried and found good. One is the northern Transvaal farm reclaimed by Dr. Hans Merensky, diamond king, who "turned from diamonds which were dead to soil and water conservation which are living things." The farm, once a "great, sad, eroding piece of land," is now one of the finest soil conservation demonstrations to be found anywhere.

The authors show that it is not hopeless, that South Africa need not become a southern Sahara. They say that much of even the Orange River dry country can be revegetated. The water table in the Karroo can be raised and the old ranching country reclaimed. Gullied lands at the tops of watersheds can be healed by reforestation and regrassing.

Through the book flows a pattern for getting vegetation back on the land and at the same time restoring fertility and growing better livestock, better crops. Simply by naming the grasses, trees and shrubs familiar to the people in everyday life and telling what they are good for, the authors point to the difference between good and bad land use. South Africa can get back her camel thorn trees, her Kaffir-wait-a-little trees, for fuel, so manure and compost materials need not be burned but can be returned to the soil for humus, "the very blood of the soil."

Of such intimate, down-to-earth stuff is this book made. Remember, it is for South Africa. As for us—Americans—here is a thorough study of the land conditions, water, plants, animals and people of South Africa, and a lot of African geography that can't be gleaned from maps.

—PHOEBE O'NEALL FARIS

THE LAND RENEWED. By William R. Van Dersel and Edward H. Graham. 109 pages. Oxford University Press, New York, N. Y., 1946. $2

This is an outstanding book for a number of reasons.

For one thing, this detailed account of soil and water conservation was written to interest 12-year-olds. What's more, it does. This reviewer watched a couple of moppets, 12 and 13 years old respectively go from the first to the last page without pause. It's that kind of a book.

But the odds are that *The Land Renewed* will not find its largest audience among youngsters. It's too good a bet for the busy adult who would like to get a broad understanding of soil and water conservation in an hour's interesting reading. Anyone at all interested in the land will be fascinated by this unpretentious little book. But the chances are that it will be most admired by the professional conservationist. Knowing his complex specialty as he does, he will be amazed at how completely soil and water conservation has been set forth in a hundred odd pages of simple prose—in large type—and dramatic photographs. It's all here—never technical, always thorough, accurate, and fast moving. Anyone who has ever tried to sketch even the broadest outline of soil and water conservation in an hour's conversation will be particularly impressed by what has been done here.

But the appeal of *The Land Renewed* goes beyond skillful editing. Dr. Van Dersal and Dr. Graham are distinguished biologists, well-known within and without the Soil Conservation Service. But there is no hint of "talking-down" anywhere in this book. The authors have simply presented the facts, in word and photograph, and let these facts speak for themselves.

"The food we get is only as good as the soil it comes from," they write. "If the soil is poor, so is the food, whether it looks good or not * * * Our soil is exactly as important as the food we eat. Poor soil—poor people. Rich soil—healthy people. This is one reason why all of us have a personal interest in American land * * * We know that a great quantity of good land is the key to the power and freedom of our Nation.

With that introduction, the authors go on to describe what has happened to America's land—"as much land as there is in Ohio, Indiana, Illinois, Wisconsin, and Missouri so eroded that today it can no longer be cultivated."

Then, in one-page chapters illustrated by facing photographs, the story of how the land can be built back is told. It has never been told more clearly. Orchards, pasture, odd spots, fields, and meadow—the parts of typical farms in various sections of the country. You can see the wasted land in the photograph; you can read the outlined treatment; you can see the land renewed. Without leaving your armchair, you can visit a score of these renewed farms in an hour, and see the pattern of farming that the authors so rightly call "Design for Living". Reading *The Land Renewed* is a stimulating experience. It will be a pity if the schools don't grab this for a text.

—J. A. SMITH

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SOIL CONSERVATION SERVICE

Earthworms Fight Erosion Too. Reprinted from *Soil Conservation*. Vol. XI, No. 11, May 1946. Processed.

Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts for Colorado River Drainage Basin, May 1, 1946. Division of Irrigation, Soil Conservation Service, United States Department of Agriculture in cooperation with Colorado Agricultural Experiment Station. May 1946.

Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts for Missouri and Arkansas Drainage Basins, May 1, 1946. Division of Irrigation, Soil Conservation Service, United States Department of Agriculture in cooperation with Colorado Agricultural Experiment Station. May 1946.

Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts for Oregon, May 1, 1946. Division of Irrigation, Soil Conservation Service, United States Department of Agriculture in cooperation with Oregon Agricultural Experiment Station. May 1946.

Federal-State Cooperative Snow Surveys and Irrigation Water Forecasts for Rio Grande Drainage Basin, May 1, 1946. Division of Irrigation, Soil Conservation Service, United States Department of Agriculture, in cooperation with Colorado Agricultural Experiment Station. May 1946.

Nevada Snow Survey Bulletin: Nevada Cooperative Snow Surveys. Soil Conservation Service, United States Department of Agriculture in cooperation with Nevada Agricultural Experiment Station, Reno, Nev. April 1946.

Ranch Planning Handbook. Range Division, Soil Conservation Service, United States Department of Agriculture, Washington 25, D. C. April 1946. Processed.

Soil Conservation During the War. War Records Monograph—2. Soil Conservation Service, United States Department of Agriculture, Washington 25, D. C. March, 1946. Processed.

Soil Conservation Moves Ahead. An address prepared for delivery by Dr. Edward H. Graham, Chief of the Biology Division, United States Department of Agriculture, Soil Conservation Service, at a meeting of the North Carolina Garden Club at Southern Pines, N. C. April 29, 1946. Mimeo.

Standard Procedures for Range Surveys. Range Division, Soil Conservation Service, United States Department of Agriculture, Washington 25, D. C. (Prepared solely for use within the Soil Conservation Service.) May 1946. Processed.

[1] From the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

OFFICE OF INFORMATION

U. S. DEPARTMENT OF AGRICULTURE

Bibliography on Cork Oak. Bibliographical Bulletin No. 7. Library, United States Department of Agriculture, Washington 25, D. C. April 1946. 15¢.[1]

Prewar World Production and Consumption of Plant Foods in Fertilizers. Miscellaneous Publication No. 593. Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, Washington 25, D. C. April 1946. 20¢.[1]

Relation of Soil Reaction to Toxicity and Persistence of Some Hebricides in Greenhouse Plots. Technical Bulletin No. 911. Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, Washington 25, D. C. 1946. 10¢.[1]

STATE BULLETINS

Agricultural Research in Texas. Fifth Series, Vol. 2, No. 6, Catalogue Number: Part VIII. The Agricultural and Mechanical College of Texas, Texas Agricultural Experiment Station, College Station, Tex. June 1946.

Bimonthly Bulletin: Vol. XXXI, No. 239. Ohio Agricultural Experiment Station, Wooster, Ohio. March–April 1946.

Crotolaria. Press Bulletin No. 566. Georgia Experiment Station, Experiment, Georgia. May 1946. Mimeo.

Current Farm Economics, Oklahoma. Vol. 19, No. 2. Oklahoma Agricultural and Mechanical College, Oklahoma Agricultural Experiment Station, Stillwater, Okla. April 1946.

Dry Land Pasture Experiments: Central Montana Branch Station, Moccasin, Mont. Bulletin No. 431. (Bulletin No. 388 Revised.) Montana State College, Agricultural Experiment Station, Bozeman, Mont. 1945.

Effect of Certain Summer and Winter Legume Crops in Improving Corn Yields in South Louisiana. Louisiana Agricultural Experiment Station Bulletin No. 396. Louisiana Agricultural Experiment Station, University Station, Baton Rouge, La. 1945.

Farm Science and Practice: Sixty-third Annual Report of the Ohio Agricultural Experiment Station for the Year ended June 30, 1944. Bulletin No. 659. Ohio Agricultural Experiment Station, Wooster, Ohio. June 1945.

Gypsum, A Soil Corrective and Soil Builder. Arizona Agricultural Experiment Station Bulletin No. 200. Arizona Agricultural Experiment Station, Tucson, Ariz. 1945.

Management of Soils in the Lower Rio Grande Valley. Circular No. 110. Texas Agricultural Experiment Station, Agricultural and Mechanical College of Texas. March 1946.

More Corn Per Acre Needed in Georgia. Press Bulletin No. 565. Georgia Experiment Station, Experiment Georgia. May 1946. Mimeo.

The happy smile on the face of Georgia's Bobby Thompson has been duplicated by many persons who have fished farm ponds during the past few years. About 15,000 ponds have been carefully stocked and are now being managed by farmers and ranchers in soil conservation districts. They yield blue-gills like those Bobby holds and large-mouth bass, as well. The fish are a supplemental source of food highly valued by many farm families.

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